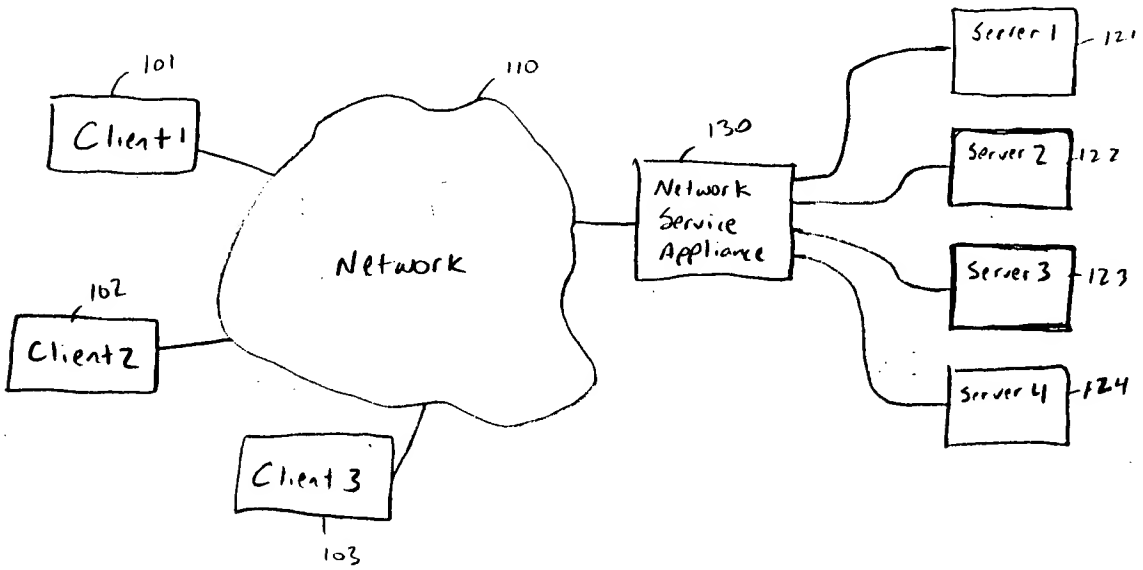
101
Client 1
110
Network
130
Network Service Appliance
Server 1
121
Server 2
122
Server 3
123
Server 4
124
102
Client 2
Client 3
103

Figure 1

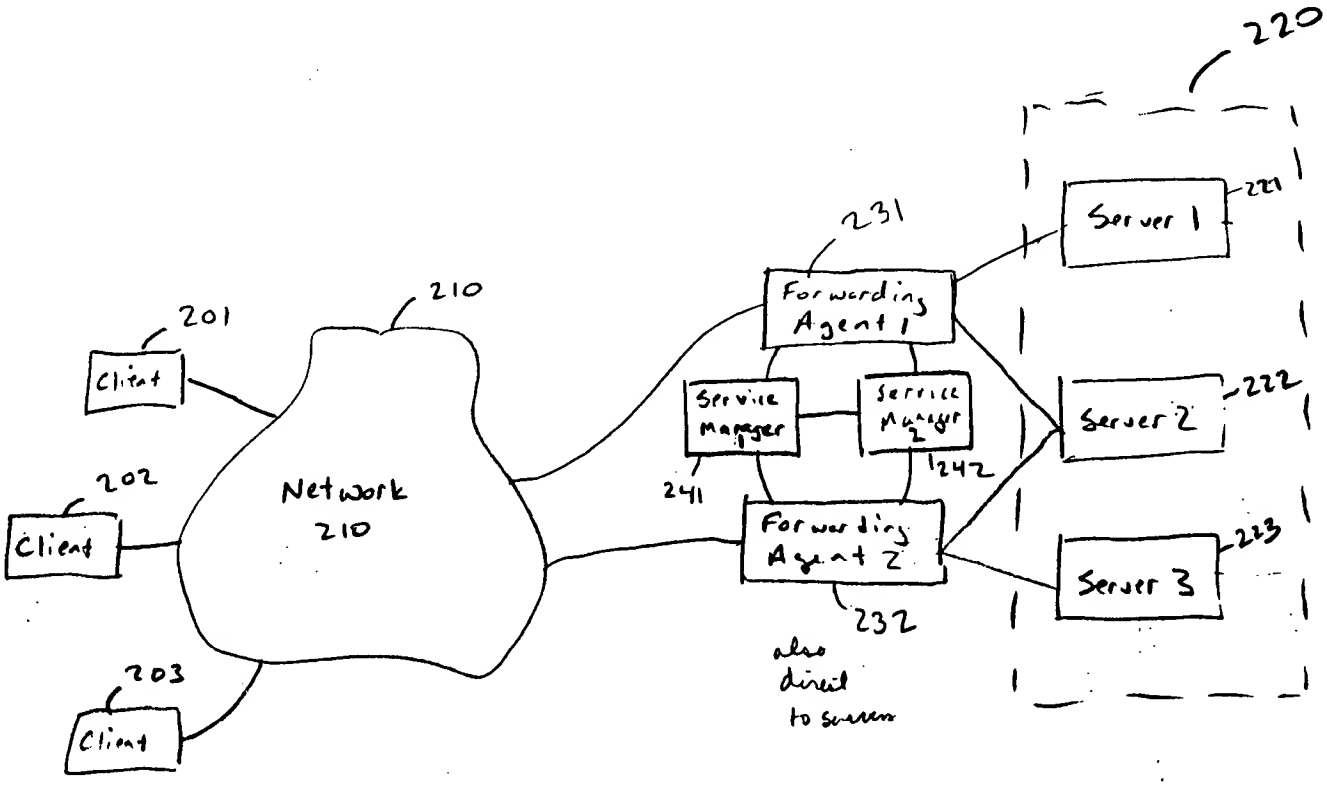

Figure 2A

09341734 - 070296

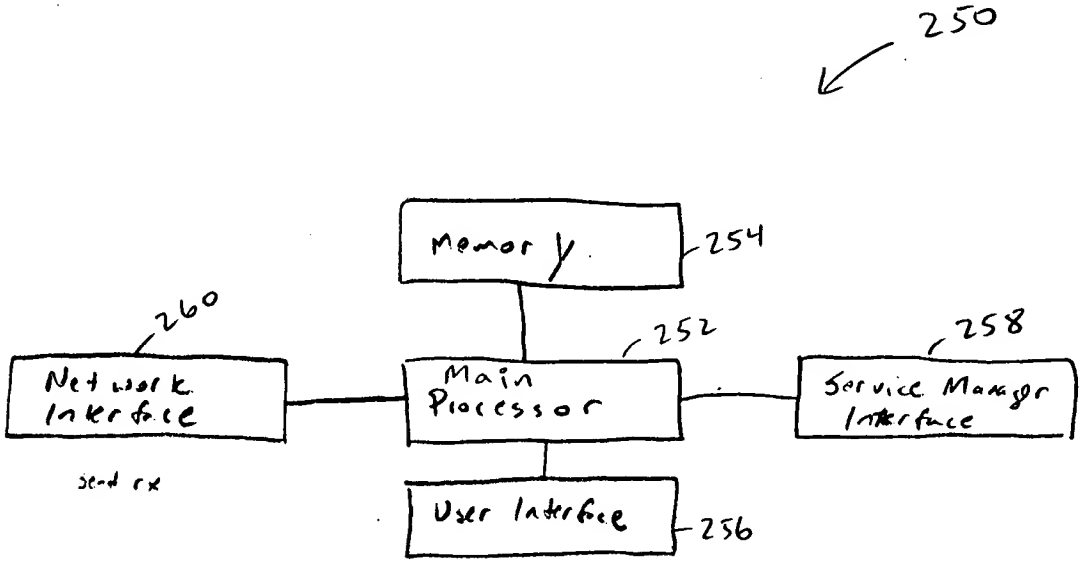
250
Memory
254
260
252
258
Network Interface
Main Processor
Service Manager Interface
send rx
User Interface
256

Figure 2B

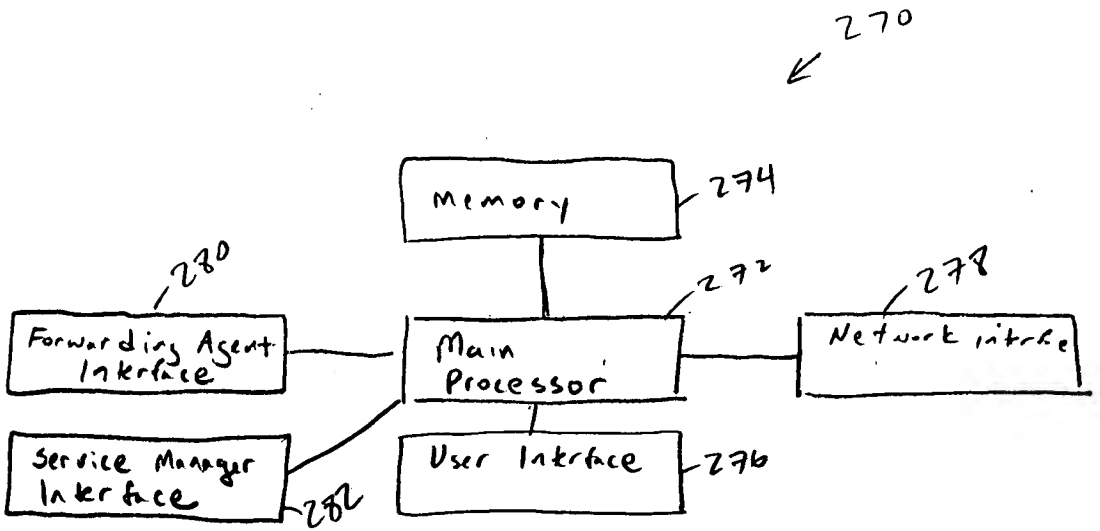
270
Memory
274
280
272
278
Forwarding Agent Interface
Main Processor
Network interface
Service Manager Interface
User Interface
276
282

Figure 2C

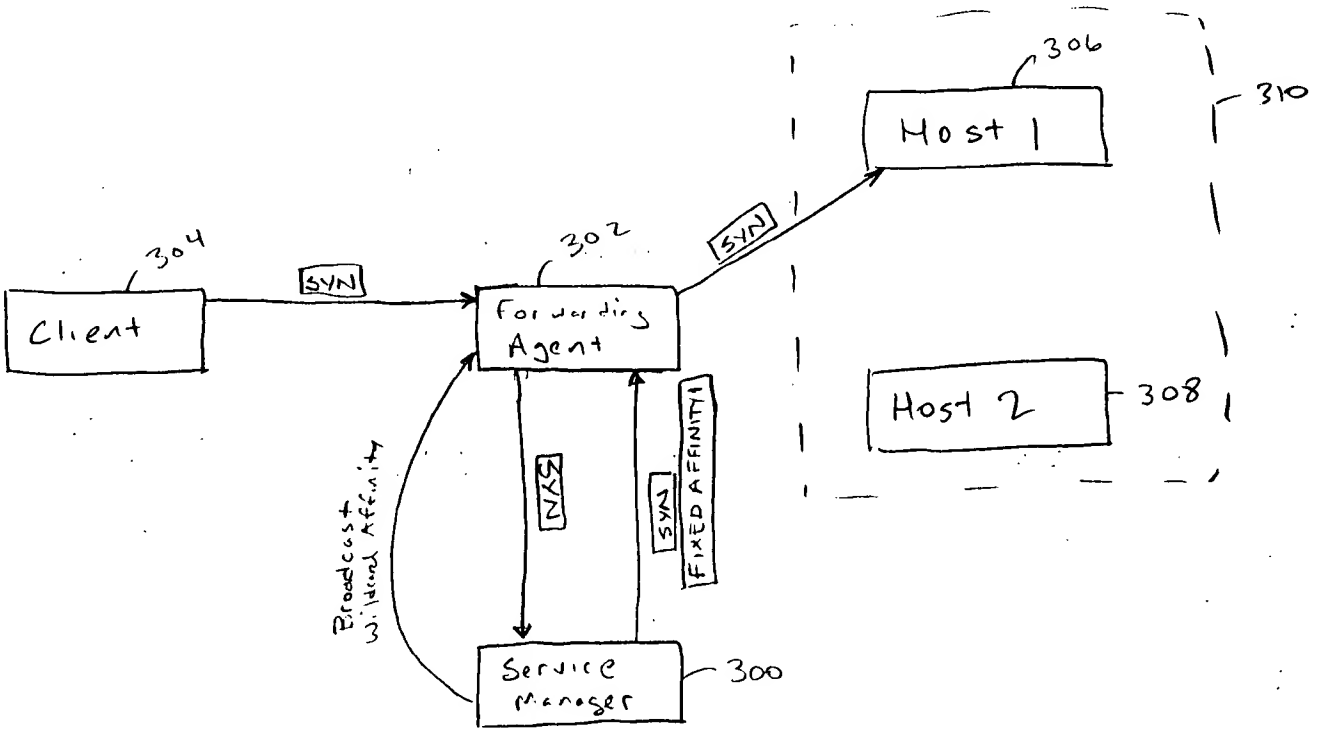
306
310
Host 1
Host 2
308
304
Client
SYN
302
Forwarding Agent
SYN
Broadcast Wildcard Affinity
SYN
SYN
FIXED AFFINITY
Service Manager
300

Figure 3A

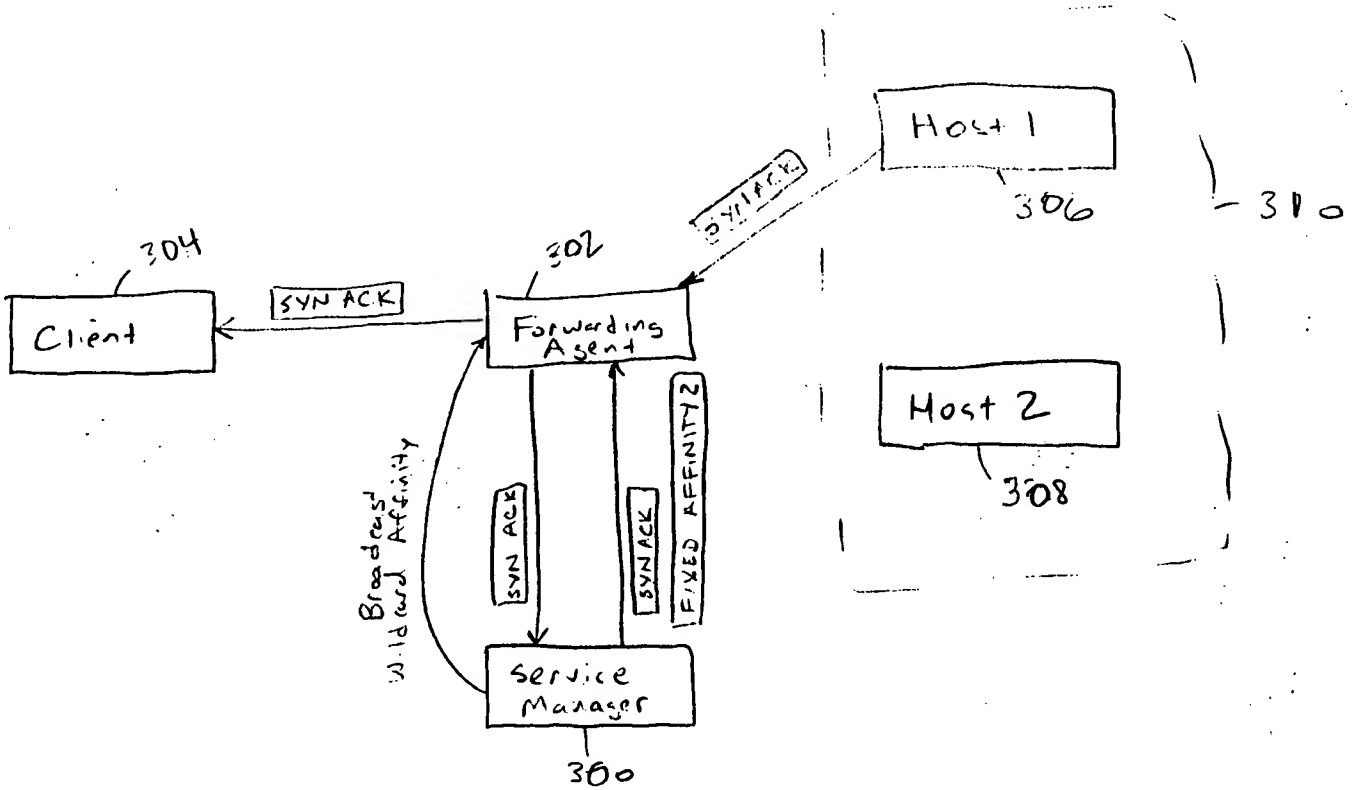

Figure 3B

05-3708-US-PCT-0708P68

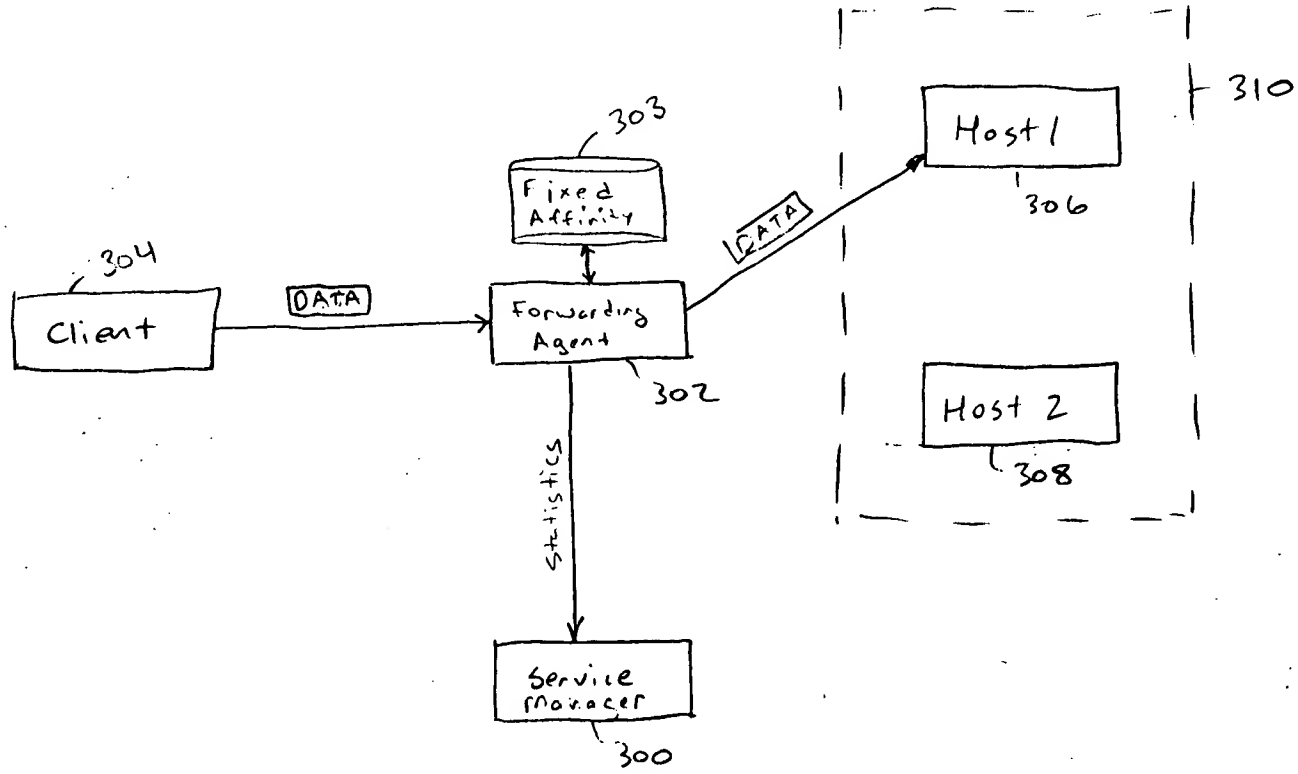
303
Fixed Affinity
304
Client
DATA
Forwarding Agent
302
DATA
310
Host 1
306
Host 2
308
Statistics
Service Manager
300

Figure 3C

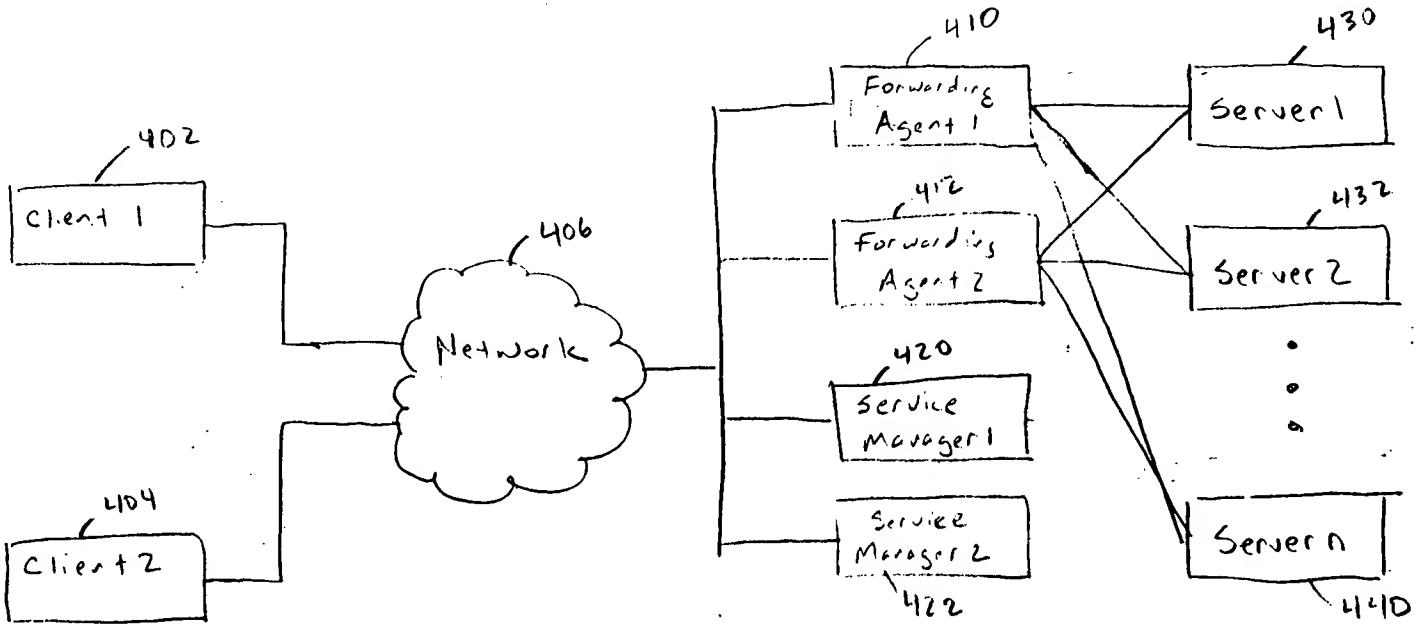
410
430
Forwarding Agent 1
Server 1
402
412
432
Client 1
406
Forwarding Agent 2
Server 2
Network
420
Service Manager 1
Server n
404
Service Manager 2
Client 2
422
440

Figure 4

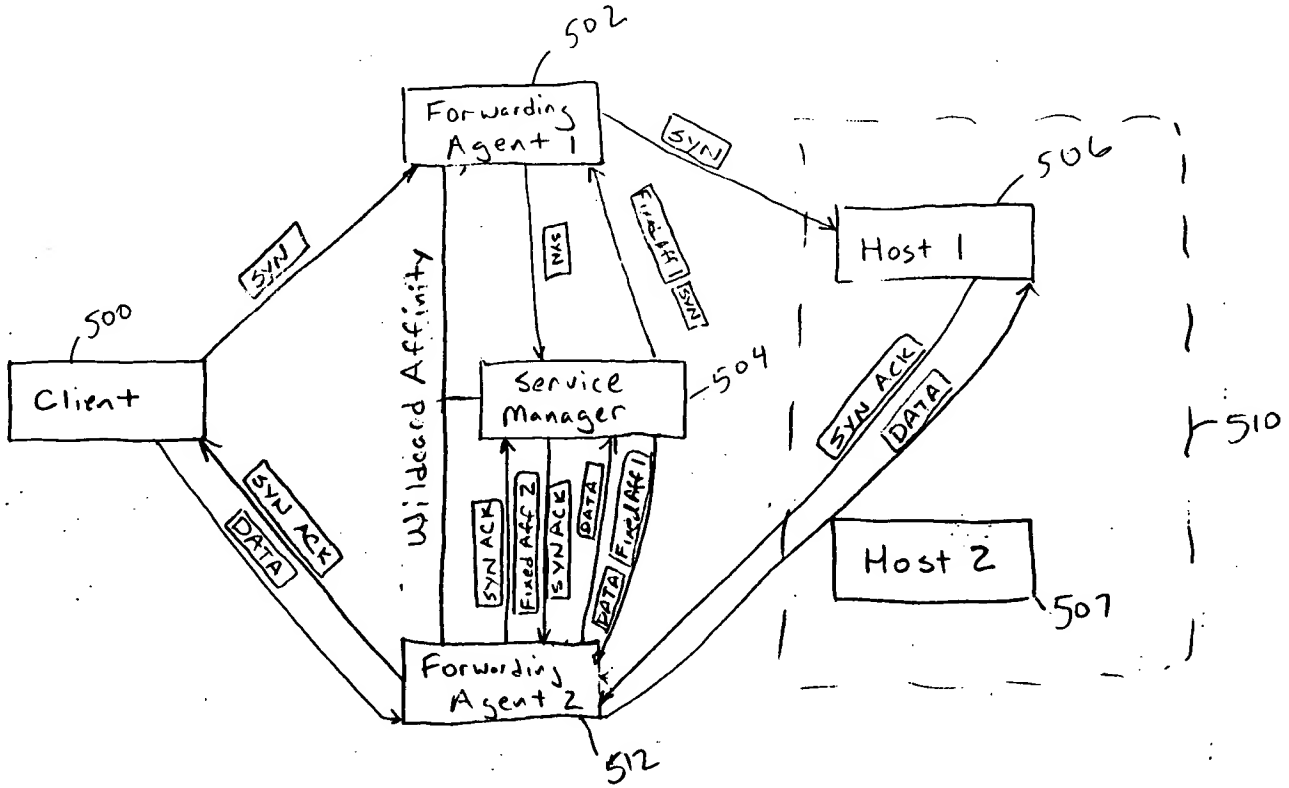
502
Forwarding Agent 1
SYN
Wildcard Affinity
SYN
Fixed Aff 1
SYN
506
Host 1
500
Client
Service Manager
504
SYN ACK
DATA
SYN ACK
Fixed Aff 2
SYN ACK
DATA
DATA
Fixed Aff 1
SYN ACK
DATA
510
Host 2
507
Forwarding Agent 2
512

Figure 5

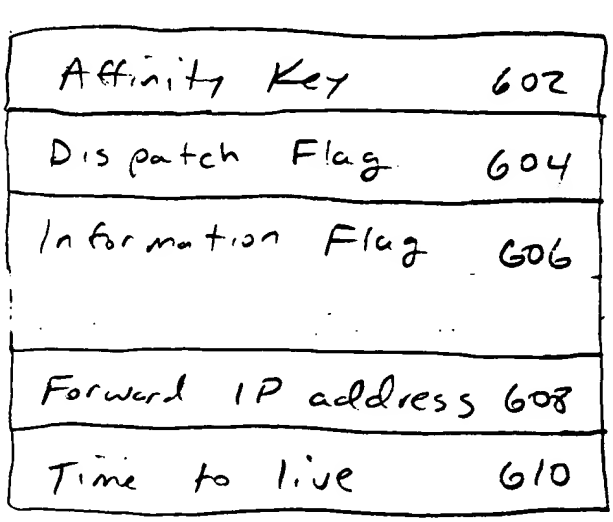
600
Affinity Key 602
Dispatch Flag 604
Information Flag 606
Forward IP address 608
Time to live 610

Figure 6

700

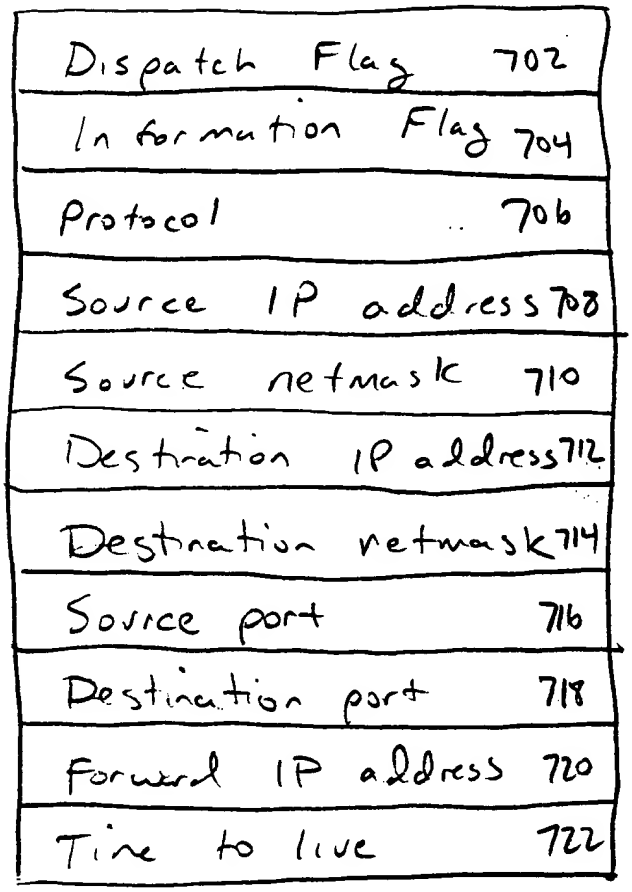
Dispatch Flag 702
Information Flag 704
Protocol 706
Source IP address 708
Source netmask 710
Destination IP address 712
Destination netmask 714
Source port 716
Destination port 718
Forward IP address 720
Time to live 722

Figure 7

800

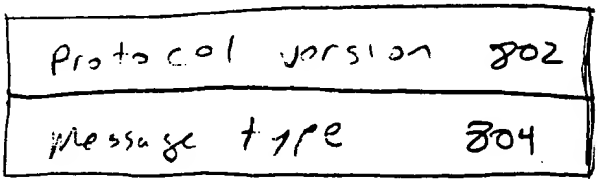

Figure 8A

810

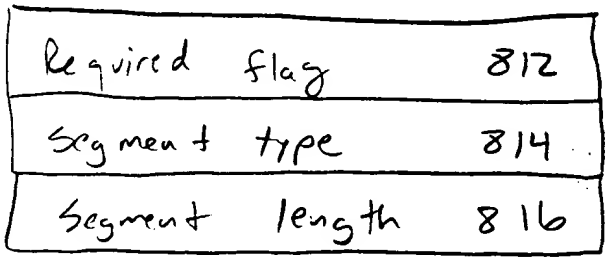

Figure 8B

820

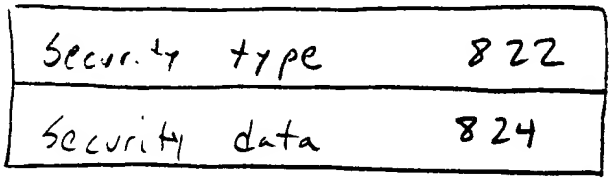

Figure 8C

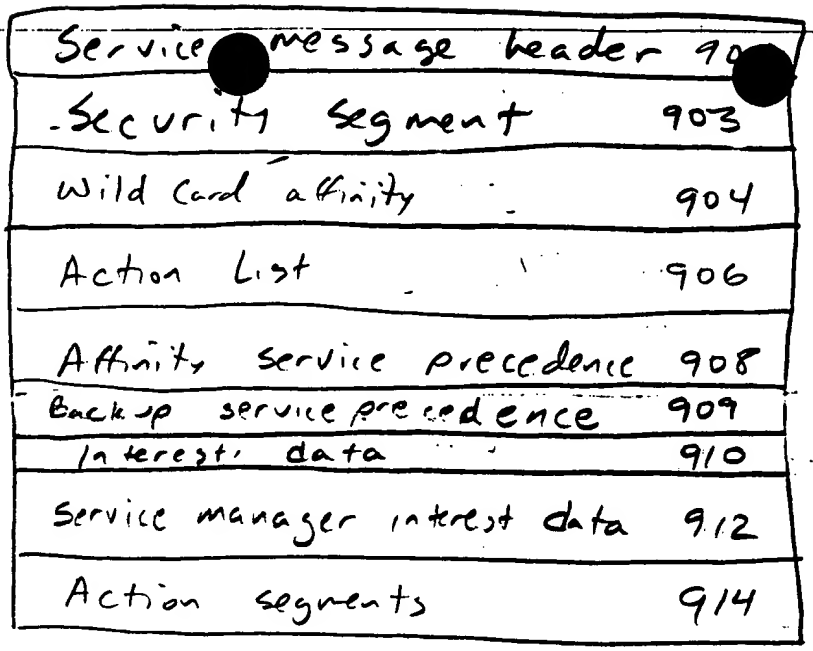

Figure 9A

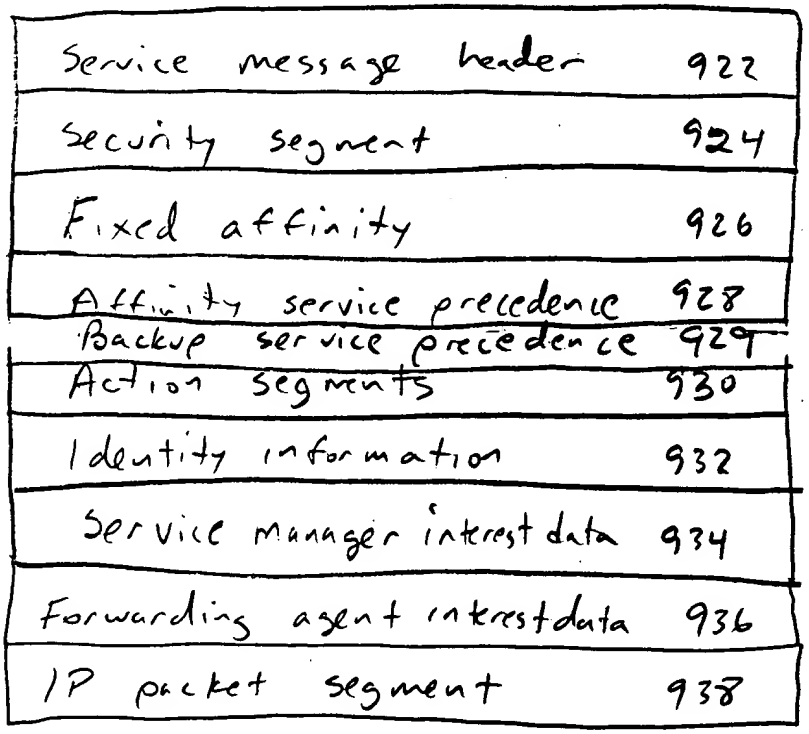

Figure 9B

Service message header	941	← 940
Security segment	942	
Action list segment	944	
Affinity Segment (from original affinity)	946	
Identity information (from original affinity)	948	
Service manager interest data	950	
Forwarding agent interest data	952	

Figure 9C

Service message header	962	← 960
Security Segment	964	
Affinity Identifier	966	
Identity information (from original affinity	968	
Service manager interest data	970	
Forwarding agent interest data	972	
IP packet Segment	974	

Figure 9D

Service message header	982	← 980
IP packet segment	984	

Figure 9E

1000

Dispatch Flag	1002
Information Flag	1004
Affinity key	1006
Interest mask	1008

Figure 10 A

1010

Search order Flag	1012
Precedence value	1014

Figure 10 B

1020

Service Manager Interest Data	1021

Figure 10 C

1022

Forwarding Agent Interest Data	1023

Figure 10 D

1024

IP address of Sender	1025
Character host name	1026

Figure 10 E

1030

Source IP address	1032
Destination IP address	1034
Source port	1036
Destination port	1038

Figure 10F

1040

Sequence delta	1042
Initial sequence number	1044
Acknowledgment delta	1046
Initial Acknowledgment number	1048

Figure 10G

1050

Advertise address	1052
Subnet mask	1054

Figure 10H

1060

Interest IP Address	1062
Interest Port	1064
Interest Mask	1066
Data Flag	1067
Copy Flag	1068
Hold Flag	1069

Figure 10I

1070

Action Type 1	1072
Action Type 2	1074
.	
.	
.	
Action Type n	1080

Figure 10J

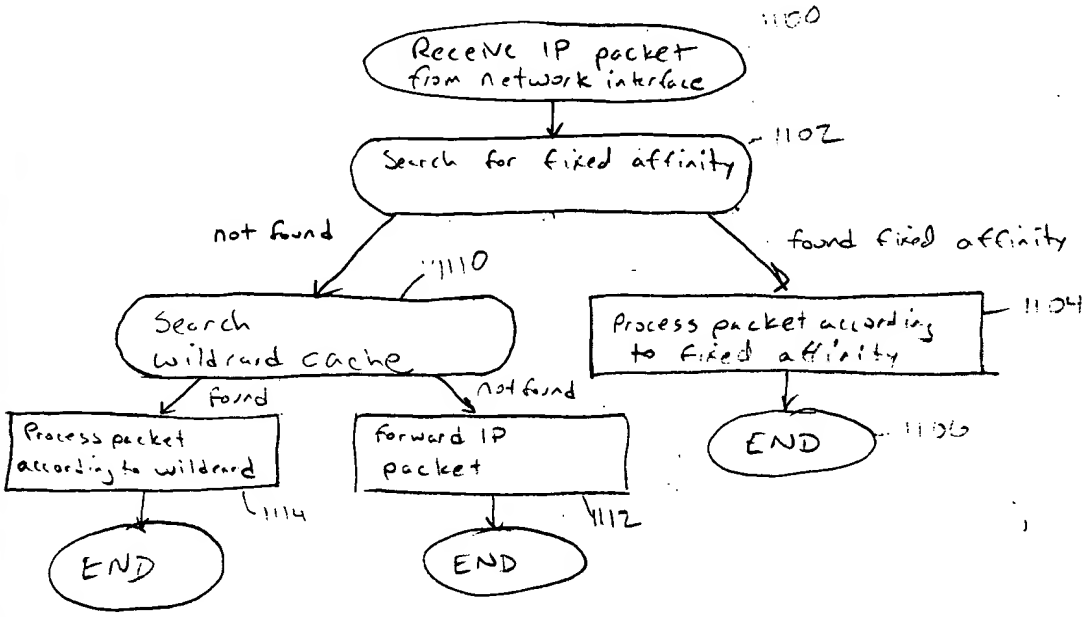
1100
Receive IP packet from network interface
1102
Search for fixed affinity
not found
found fixed affinity
1110
Search wildcard cache
1104
Process packet according to fixed affinity
found
not found
Process packet according to wildcard
1114
forward IP packet
1112
END
END
END
1106

Figure 11

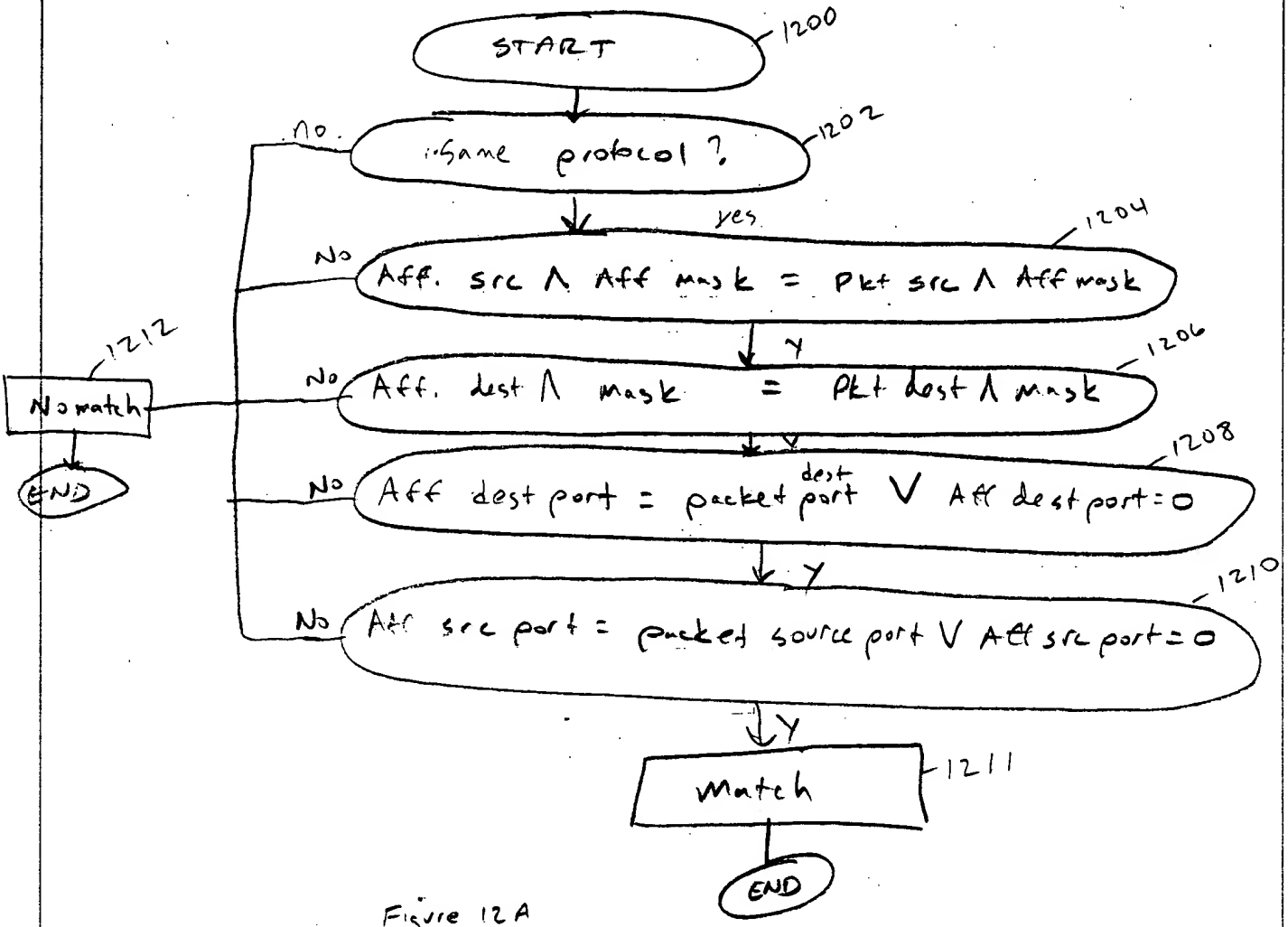

Figure 12A

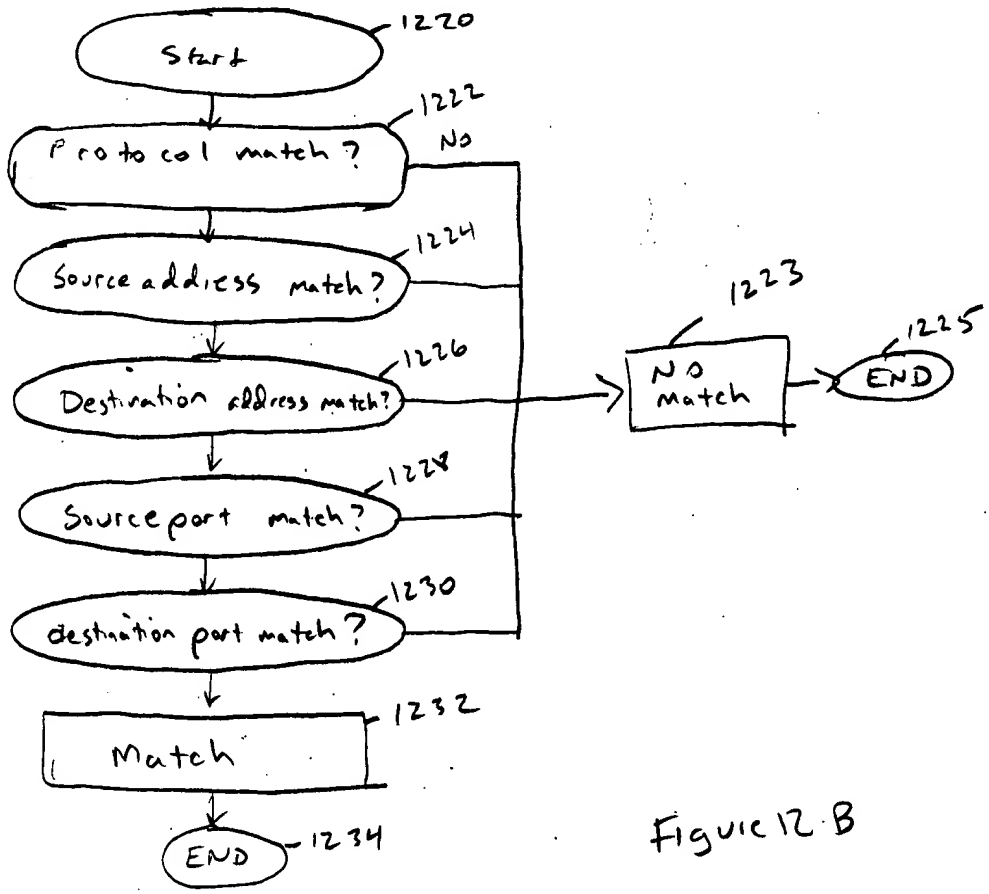

Figure 12B

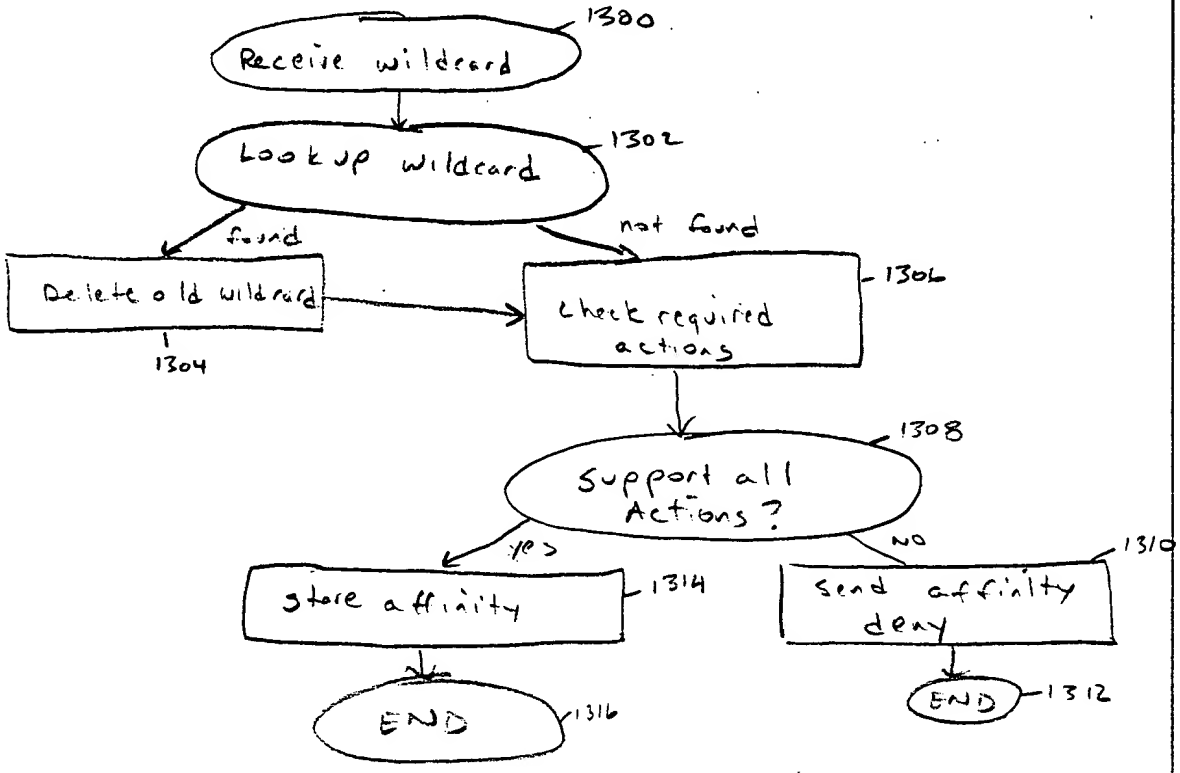
1300
Receive wildcard
1302
Look up wildcard
found
not found
Delete old wildcard
1304
1306
Check required actions
1308
Support all Actions?
YES
NO
1310
Store affinity
1314
Send affinity deny
END
1316
END
1312

Figure 13

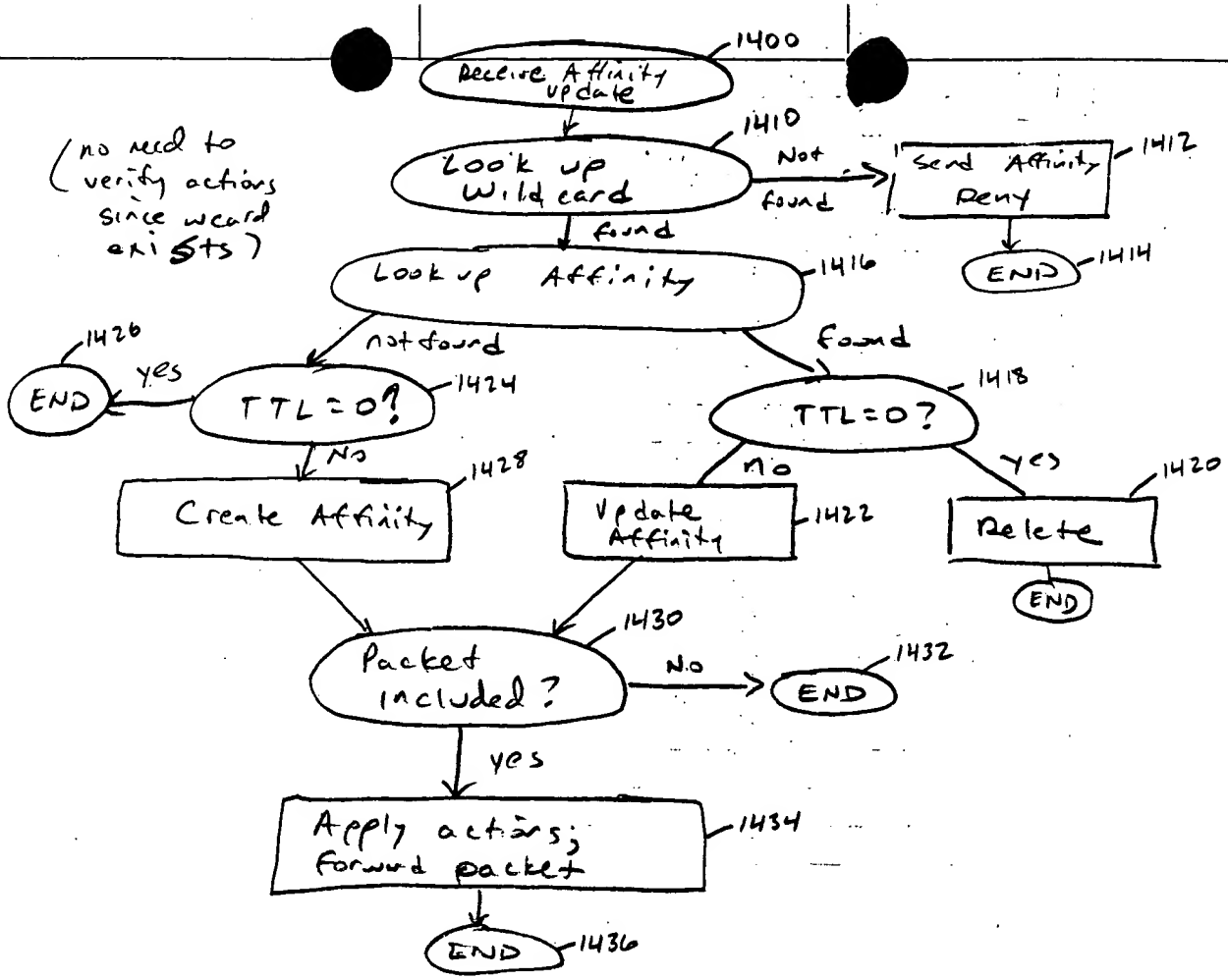
1400
Receive Affinity update
1410
Look up Wild card
Not found
1412
Send Affinity Deny
END
1414
found
(no need to verify actions since wcard exists)
Look up Affinity
1416
not found
found
1426
END
yes
TTL=0?
1424
1418
TTL=0?
No
1428
Create Affinity
No
Update Affinity
1422
yes
1420
Delete
END
1430
Packet included?
No
1432
END
yes
Apply actions; forward packet
1434
END
1436

Figure 14

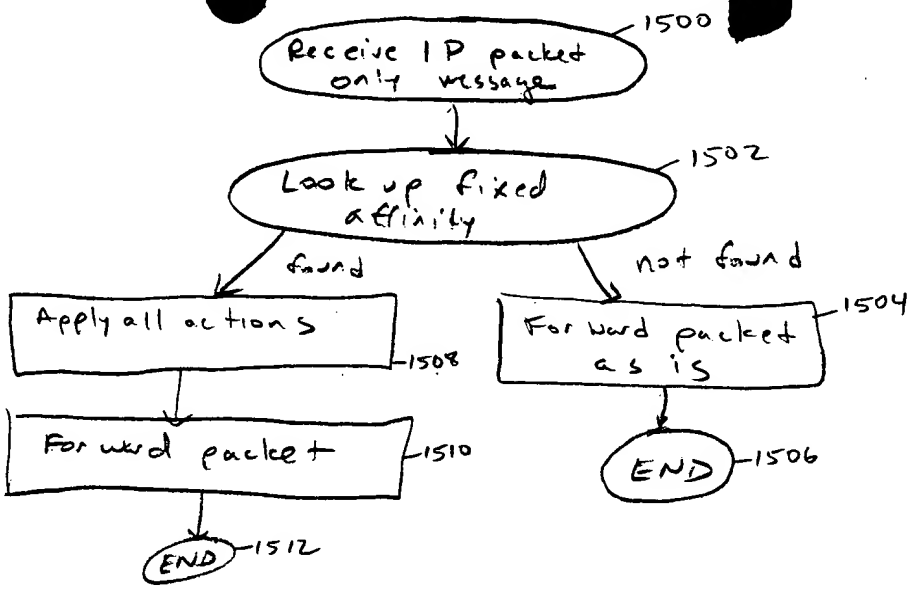

Figure 15

Tops
DRAFT

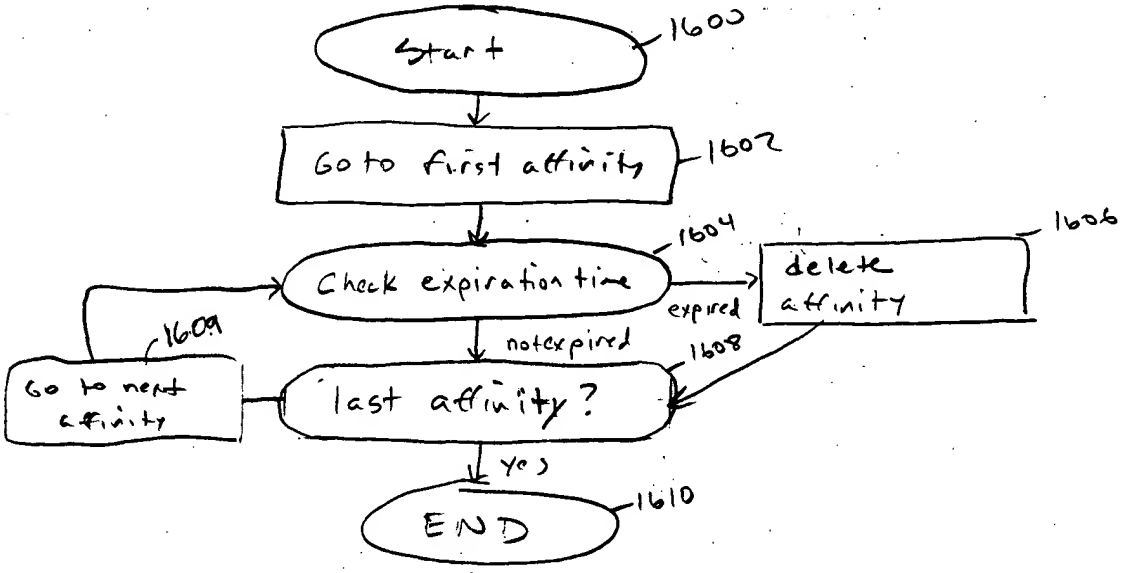
Start
1600
Go to first affinity
1602
Check expiration time
1604
delete affinity
1606
expired
not expired
Go to next affinity
1609
last affinity?
1608
yes
END
1610

Figure 16